

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS:

1-15. (Canceled).

16. (Currently Amended) A simulation system for computer-implemented simulation and verification of a control system under development, comprising:

a simulation host-target architecture;

wherein a real-time operating system of a target of the host-target architecture, the target representing at least a part of the control system, is reconfigured by the host of the host-target architecture via a first application programming interface associated with the real-time operating system of the target, so as to dynamically reconfigure at least one of the following real-time-properties of the real time operation system:

a kind of task, including at least one of a periodic task, an ISR task, a task invoked by software, and a task occurring upon application mode initialization,

a task priority and a scheduling mode, which includes one of a cooperative mode, a pre-emptive mode, and a non-pre-emptivable mode,

a task period and a task offset,

a task deadline and a maximum number of activations,

a content of the task, the content including processes within the task and the [[their]] order of the processes within the task, and application modes of the operating system,

resources, alarms, and counters,

I/O configuration and network management, and

events and messages for communication and for an association thereof.

17. (Canceled).

18. (Previously Presented) The simulation system according to claim 16, wherein the operating system is reconfigured after downloading an executable software onto the target, so that a real-time behavior of a software of the simulation target is one of defined and altered.

19. (Previously Presented) The simulation system according to claim 16, wherein the first application programming interface associated with the operating system is a part of the operating system.

20. (Previously Presented) The simulation system according to claim 16, further comprising:
a second application programming interface associated with the operating system,
wherein the second application programming interface associated with the operating system is a part of the operating system;
wherein the first application programming interface associated with the operating system is not part of the operating system.

21. (Previously Presented) The simulation system according to claim 16, wherein the simulation host includes at least one modeling tool, and wherein a software of the control system is executed on the simulation target.

22. (Previously Presented) The simulation system according to claim 21, further comprising:
a target server for connecting the at least one modeling tool with the simulation target.

23. (Previously Presented) The simulation system according to claim 22, wherein the target server includes a protocol driver of a communication protocol used for communication with the simulation target.

24. (Previously Presented) The simulation system according to claim 16, further comprising:
a plurality of simulation process modules with corresponding memory modules and interface modules, wherein the simulation process modules represent distinct memory locations for facilitating inter-module communications.

25. (Previously Presented) The simulation system according to claim 16, wherein the computer-implemented simulation is performed by executing a control system simulation

model, and wherein the control system simulation model includes a plurality of sub-models executed on the corresponding plurality of simulation process modules.

26. (Previously Presented) The simulation system according to claim 16, wherein at least some of the simulation process modules are dynamically reconfigurable by communication via the distinct memory locations.

27. (Currently Amended) A host unit for a simulation system for computer-implemented simulation and verification of a control system under development, the simulation system having a host-target architecture, comprising:

a simulation host, wherein the simulation host is of the host-target architecture wherein a real-time operating system of a target of the host-target architecture, the target representing at least a part of the control system, is reconfigured by the host of the host-target architecture via a first application programming interface associated with the real-time operating system of the target, so as to dynamically reconfigure at least one of the following real-time-properties of the real time operation system:

a kind of task, including at least one of a periodic task, an ISR task, a task invoked by software, and a task occurring upon application mode initialization,

a task priority and a scheduling mode, which includes one of a cooperative mode, a pre-emptive mode, and a non-pre-emptivable mode,

a task period and a task offset,

a task deadline and a maximum number of activations,

a content of the task, the content including processes within the task and the ~~the~~ order of the processes within the task, and application modes of the operating system,

resources, alarms, and counters,

I/O configuration and network management, and

events and messages for communication and for an association thereof.

28. (Currently Amended) A computer-implemented method for simulating and verifying a control system under development, comprising:

providing a host-target architecture; and

reconfiguring a real-time operating system of a target of the host-target architecture, the target representing at least a part of the control system, by the host of the host-target architecture via a first application programming interface associated with the real-time operating system of the target, so as to dynamically reconfigure at least one of the following real-time-properties of the real time operation system:

a kind of task, including at least one of a periodic task, an ISR task, a task invoked by software, and a task occurring upon application mode initialization,

a task priority and a scheduling mode, which includes one of a cooperative mode, a pre-emptive mode, and a non-pre-emptivable mode,

a task period and a task offset,

a task deadline and a maximum number of activations,

a content of the task, the content including processes within the task and the [[their]] order of the processes within the task, and application modes of the operating system,

resources, alarms, and counters,

I/O configuration and network management, and

events and messages for communication and for an association thereof.

29. (Currently Amended) A computer-readable storage medium for storing a computer program that performs, when executed on a computer, a method for simulating and verifying a control system under development, the method comprising:

providing a host-target architecture; and

reconfiguring a real-time operating system of a target of the host-target architecture, the target representing at least a part of the control system, by the host of the host-target architecture via a first application programming interface associated with the real-time operating system of the target, so as to dynamically reconfigure at least one of the following real-time-properties of the real time operation system:

a kind of task, including at least one of a periodic task, an ISR task, a task invoked by software, and a task occurring upon application mode initialization,

a task priority and a scheduling mode, which includes one of a cooperative mode, a pre-emptive mode, and a non-pre-emptivable mode,

a task period and a task offset,

a task deadline and a maximum number of activations,
a content of the task, the content including processes within the task and the ~~[[their]]~~
order of the processes within the task, and application modes of the operating system,
resources, alarms, and counters,
I/O configuration and network management, and
events and messages for communication and for an association thereof.

30. (Currently Amended) The simulation system according to claim 16, wherein ~~[[the]]~~ a
cross-bar switch replicates data under real time conditions.

31. (Currently Amended) The simulation system according to claim 16, wherein ~~[[the]]~~ a
cross-bar switch copies values of output signals to communication variables after reaching a
consistent state.

32. (Currently Amended) The simulation system according to claim 31, wherein ~~[[the]]~~ a
cross-bar switch passes the values of output signals before ~~[[the]]~~ a respective process
modules continue computation.

33. (Previously Presented) The simulation system according to claim 20, wherein the
simulation host includes at least one modeling tool, and wherein a software of the control
system is executed on the simulation target.

34. (Previously Presented) The simulation system according to claim 33, further comprising:
a target server for connecting the at least one modeling tool with the simulation target.

35. (Previously Presented) The simulation system according to claim 34, wherein the target
server includes a protocol driver of a communication protocol used for communication with
the simulation target.